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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/628,373 | 07/29/2003 | Sridevi Narayan-Sarathy | 20435-00141-US | 4318 |

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CONNOLLY BOVE LODGE & HUTZ LLP
SUITE 800
1990 M STREET NW
WASHINGTON, DC 20036-3425

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| EXAMINER |
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BERMAN, SUSAN W

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| ART UNIT | PAPER NUMBER |
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1711

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|------------------------|------------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/628,373 | NARAYAN-SARATHY ET AL. | |
| | Examiner | Art Unit | |
| | Susan W Berman | 1711 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-58 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

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Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 1 and 51, the phrase "Michael Addition polyacrylate reaction product", does not make clear whether the Michael addition product is a polyacrylate (has more than one acrylate functional groups) or is the product of a polyacrylate and another compound reacted by Michael addition (this product would not have acrylate functional groups). Claims 3, 4 and 5 do not have antecedent basis in claim 1 because claim 1 does not recite a β -dicarbonyl Michael donor or a multifunctional acrylate Michael acceptor. Claim 10 fails to further limit claim 1 since a multifunctional mercaptan inherently has at least two thiol groups. Claims 13, 16, 19 are indefinite because it is not clear whether applicant intends to set forth a specific mercaptan contained in the claimed composition or not. If applicant intends to set forth "wherein said dimercaptan is ethylene glycol dimercaptopropionate", for example, the claim should so state. There is no antecedent basis in claim 15 for the non-reactive solvent set forth in claim 32. In claim 40, it is not clear what is meant by "simple" C_{1-18} acrylate esters. How are these esters different from the other acrylates in the claim? There is no antecedent basis in claim 42 for the peroxide set forth in claim 44. Claim 46 is rendered indefinite by the recitation "further crosslinked" since no previous crosslinking is mentioned. It is suggested that the claim might read "A polymerized product obtained by crosslinking a liquid oligomeric composition comprising...in the presence of a free radical generator". Claim 49 should be rewritten to recite that the photoinitiator is in the composition, not in the polymerized product. Claims 57 and 58 are unclear because they recite that the monoacrylate "is present" and then that the amount can be 0 mol %. With respect to claim 50, as written, it is not clear what component in the liquid oligomeric

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composition has pendent unsaturated acrylate groups. Applicant discloses that the Michael adduct has pendent unsaturated acrylate groups. It is suggested that this be clearly set forth in the claim.

With respect to claims 7-9, it is noted that the claims are not limited to the particular molar acrylic ratio set forth but merely state what the ratio would be for the diacrylate, triacrylate or tetraacrylate. With respect to claims 25-26, it is noted that the claims are not limited to compositions wherein the multifunctional acrylate Michael acceptor is a triacrylate or a tetraacrylate, but merely set forth what the triacrylate or tetraacrylate would be if present. With respect to claims 27-30, it is noted that the claims are not limited to the particular β -dicarbonyl Michael donors set forth but merely state what the β -dicarbonyl Michael donors would be if present.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ostlie (5,876,805) in view of Moy et al (5,945,489). Ostlie discloses photopolymerizable thiol-ene compositions wherein the –ene compound can be a multifunctional acrylate compound and the thiol compounds disclosed correspond to those set forth in the instant claims. See column 3, lines 43, to column 4, line 19, and the Examples. Ostlie does not teach polyacrylates that are organic soluble, ungelled, uncrosslinked Michael addition reaction products, as set forth in the instant claims. Moy et al disclose Michael addition reaction products of acetoacetate functional donor compounds and multifunctional acrylate receptor compounds that are acrylate functional products that can be further crosslinked to make coatings, laminates and adhesives. Moy et al do not teach compositions comprising a polythiol.

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It would have been obvious to one skilled in the art at the time of the invention to employ the Michael addition reaction products taught by Moy et al as the polyacrylates in the polyene-polythiol compositions disclosed by Ostlie. Ostlie provides motivation by teaching that several different kinds of polyacrylate compounds are suitable in the disclosed compositions as long as the compounds are multifunctional acrylate compounds. Moy et al provide motivation by teaching that the disclosed Michael addition reaction products can be crosslinked without adding costly photoinitiators and can be added to other resins (column 2, lines 5-24). One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a composition useful for providing coatings of plastic, wood and metal substrates by reaction of polyacrylate-functional and thiol-functional compounds, as taught by Ostlie.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Moy et al (6,025,410) and Damann et al (6,706,414) are cumulative of the teachings of Moy et al '489. Ohkawa et al (5,236,967) disclose optical molding compositions comprising polyacrylate compounds and polythiol compounds and a radical polymerization initiator. Alfons (5,496,896) discloses compositions based on a Michael addition product. Ando et al (4,272,586) disclose photocurable compositions comprising a polyene, a polythiol and a photocuring rate accelerator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Susan W Berman
Primary Examiner
Art Unit 1711

SB
3/7/05